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Short communication

Evaluation of *Irimedadi Taila* as an adjunctive in treating plaque-induced gingivitisShweta Patil ^a, Siddhartha A. Varma ^{b,*}, Girish Suragimath ^b, Keshava Abbayya ^b, Sameer A. Zope ^b, Vishwajeet Kale ^b^a School of Dental Sciences, Krishna Institute of Medical Sciences Deemed University, Karad, Dist.- Satara, Maharashtra state, 415110, India^b Department of Periodontology, School of Dental Sciences, Krishna Institute of Medical Sciences Deemed University, Karad, Dist.- Satara, Maharashtra state, 415110, India

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ABSTRACT

Background: Ayurvedic drugs have been used since ancient times to treat diseases including periodontal diseases. Oral rinses made from ayurvedic medicines are used in periodontal therapy to control bleeding and reduce inflammation.

Objective: To evaluate the efficacy of herbal preparation (*Irimedadi taila*) on reduction of plaque induced gingivitis.

Materials and methods: A total of 100 volunteers with clinical signs of mild to moderate gingivitis were selected and assigned to Group A (only scaling done) and Group B (scaling along with the use of *Irimedadi taila*). After recording the clinical parameters, the patients were instructed to use 2–3 drops of *Irimedadi taila* and gently massage the gums twice daily in Group B and oral hygiene instructions were given to all patients. Plaque and gingivitis assessment were carried out using the plaque index (Silness and Loe, 1964), Gingival index (Loe and Silness, 1963), and modified sulcular bleeding index (Mombelli et al.) at baseline and at 21 days post treatment. Statistically analysis was carried out using the student's paired t test for intra group comparison and unpaired t test for inter group comparison.

Results: Results showed that *Irimedadi taila* is effective in reducing gingival index and gingival bleeding index scores in comparison to scaling alone and the values are statistically significant with $p < 0.0001$.

Conclusion: *Irimedadi taila* is effective in treatment of plaque induced gingivitis and can be effectively used as an adjunct to mechanical therapy.

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1. Introduction

Periodontal diseases are among the most common infectious diseases affecting mankind and can lead to destruction of the periodontal ligament, cementum, gingiva and alveolar bone. Dental plaque is the primary etiological factor in gingival and periodontal diseases [1]. Thus, control of dental plaque holds the key to halt the progression of periodontal diseases. Plaque control measures include both mechanical (toothbrushes, interdental brushes, floss) and chemical methods (mouthwashes) [2]. However, a majority of population does not possess the degree of

motivation and skill to effectively use the mechanical means of plaque control, therefore emphasizing the importance of adjunctive chemical plaque control [3].

Chemotherapeutic formulations provide chemically significant benefit in the reduction of plaque-induced gingivitis. Chlorhexidine is considered as the gold standard anti-plaque agent and has been serving the dental profession since a long time. However, it has certain unpleasant side effects like tooth staining, taste disturbance, etc [2].

Herbal formulations are more appealing because they work without alcohol, artificial preservatives, flavors or colors. Herbal products have shown promising results with minimal side effects. Also, the presence of naturally occurring phytochemicals has an additional effect on inflammatory pathways and antioxidant potential, making them eligible to be used as effective anti-gingivitis agents. These herbal ingredients are abundantly available, easily

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accessible, economically feasible and culturally acceptable. They possess minimal side effects and hence can be recommended for long term use [4].

Several natural herbs such as green tea, *tulsi*, *ajwain*, turmeric, *neem*, cranberry, aloe vera, pot marigold; *triphala* etc., have been effectively used in reducing plaque accumulation and gingival inflammation [5–12]. The major strength of these products is little or no incidence of side effects. *Irimedadi taila* is one such product which is less explored in treating gingival and periodontal diseases.

Irimedadi taila is an Ayurvedic oil used for a famous procedure called oil pulling or gargling. Oil pulling is an ancient Ayurveda procedure that involves swishing oil in the mouth for oral and systemic health benefits. The ingredients in the *taila* are as follows: *Yashti*, *Trijatha*, *Manjishta*, *Gayatri*, *Lodhra*, *Katphala*, *Kshirivrikshatwak*, *Irimedadi twak*, *Musta*, *Agaru*, *Shvetachandana*, *Rakta chandana*, *Karpoora*, *Jati*, *Takkola*, *Mamsi*, *Dhataki*, *Gairika*, *Mrinala*, *Mishi*, *Vaidedi*, *Padma-kesara*, *Kumkuma*, *Laksha*, *Samanga*, *Manjishta*, *Brihati*, *Bilvapatra*, *Suradruma*, *Shaileya*, *Sarala*, *Sprikka*, *Palasha*, *Rajani*, *Daruharidra*, *Priyangu*, *Tejani*, *Pradhakaleya*, *Pushkara*, *Jaya*, *Vyaghri*, *Madana*, *Tila taila* [13]. *Taila* is prepared by boiling with prescribed *kasayas* (decoction) and *kalkas* of drugs according to the formula. This process ensures absorption of the active therapeutic properties of the ingredients used [14]. *Irimedadi taila* is indicated in almost all *danta rogas* including stomatitis, glossitis, aphthous ulcers, dental caries, pyorrhea, gingivitis, stains removal and hyperemia of gums [15–17].

However, not many studies are conducted to evaluate the efficacy of *Irimedadi taila* on dental plaque and gingivitis. Hence, the present study was undertaken to evaluate the clinical efficacy of *Irimedadi taila* in reduction of plaque-induced gingivitis using modern parameters.

2. Material and methods

2.1. Patient material

The present study was a single blinded randomized clinical trial. The research protocol was approved by the Institutional Ethics Committee (KIMSDU/ICMR/STS/2015). Participants were informed about the purpose and design of the investigation and written informed consent was obtained. The patients for this study were selected from the Outpatient Department of Periodontology, School of Dental Sciences, Karad and the study period was from April to August 2015.

2.2. Selection criteria

The subjects in the age group of 20–45 years diagnosed with plaque-induced gingivitis and fulfilling the following criteria were selected for the study; minimum of 20 teeth present with no visible signs of untreated caries, presence of bleeding on probing and patients who have not received any periodontal therapy during the past 6 months. Subjects on antibiotics coverage or any other drugs within last 3 months, pregnant women and lactating mothers and medically compromised patients were excluded. Subjects with adverse habits like tobacco users in smoke or smokeless form and history of alcohol consumption were excluded. Subjects with periodontal pockets of 4 mm or more, those with partial dentures or clinically unacceptable restorations or bridges, orthodontic appliances and those with a known history of allergy to chemical or any herbal products were also excluded.

2.3. Study design

The study comprised of 100 patients who were randomly divided into two groups by using a coin toss method as follows:

Group A: (n = 50) Patients treated by oral prophylaxis.

Group B: (n = 50) Patients treated by oral prophylaxis along with the usage of *Irimedadi taila* as an adjunctive.

2.4. Clinical assessment

Prior to oral prophylaxis, patient's periodontal status was recorded using the following standard parameters: Plaque index, Gingival index and Gingival bleeding index.

After recording the clinical parameters in selected patients by a single blinded calibrated examiner, a thorough oral prophylaxis was carried out using ultrasonic scaler. All the patients were advised same set of oral hygiene instructions. The clinical parameters were reassessed on 21st day by the same blinded examiner.

2.5. Usage of *Irimedadi taila*

Patients in Group B were instructed to take 4/5 drops of *Irimedadi taila* (Shree Shanker Pharmacy, Ahmedabad) on the index finger tip and to massage over gums of both the arches for 2 min. After using *Irimedadi taila*, patients were advised to use lukewarm water for rinsing. Patients were instructed to use the herbal *taila* for 21 days and were asked to report immediately if they felt any discomfort in using the *taila* during the course of the study.

2.6. Statistical analysis

All statistical procedures were performed using Statistical Package for Social Sciences (SPSS) 20.0 software (IBM, Armonk, NY, United States of America). Tests applied were paired *t* test and unpaired *t* test.

3. Results

General characteristics

In total, 100 patients with plaque-induced gingivitis were included with 50 participants in each group. Mean ages of the participants in Group A were 22.5 ± 3.4 years (27 males and 23 females) and in Group B were 23.8 ± 1.8 years (21 males and 29 females), respectively.

The results showed a significant reduction in Plaque index, Gingival index and Gingival bleeding index scores among both the groups A and B with $p < 0.0001$ (Table 1). Further, on inter-group comparison, group B showed a statistically significant reduction in all periodontal parameters with $p < 0.0001$ (Table 2). However, relatively reduction in the mean plaque scores was more in group A.

Along with statistically significant reduction in index scores, clinically the condition improved from moderate gingivitis to mild gingivitis. Therefore, *Irimedadi taila* as an adjunct is effective in

Table 1

Intra-group comparison of Plaque index, Gingival index and Gingival bleeding index scores before and after treatment (Paired *t* test).

	Before	After	<i>p</i> value
Plaque index			
Group A	1.39 ± 0.37	0.908 ± 0.36	<0.0001
Group B	1.044 ± 0.414	0.77 ± 0.27	<0.0001
Gingival index			
Group A	1.33 ± 0.41	1.006 ± 0.39	<0.0001
Group B	1.14 ± 0.38	0.77 ± 0.26	<0.0001
Gingival bleeding index			
Group A	25.50 ± 8.74	19.78 ± 6.81	<0.0001
Group B	23.3 ± 5.26	16.54 ± 4.75	<0.0001

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